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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/729,060

12/05/2003

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EXAMINER

MATZEK, MATTHEW D

ART UNIT

PAPER NUMBER

1771

MAIL DATE

DELIVERY MODE

08/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/729,060	<b>Applicant(s)</b> KUBOSE ET AL.	
	<b>Examiner</b> Matthew D. Matzek	<b>Art Unit</b> 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 33, 35, 41, 42, 47, 48, 53, 54, 59, 60 and 65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33, 35, 41, 42, 47, 48, 53, 54, 59, 60 and 65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

1. The amendment dated 6/5/2007 has been fully considered and entered into the Record. Claims 33, 35, 41, 42, 47, 48, 53, 54, 59, 60 and 65 have been amended and are currently active. The amended claims contain no new matter. The previous art rejections have been withdrawn as they fail to teach the newly claimed media density.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 33, 35, 41, 42, 47, 48, 53, 54, 59, 60 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahringer et al. (US 5,726,107) in view of Kahlbaugh et al. (US 5,364,456), Bond et al. (US 2002/0168912) and Pike et al. (US 6,090,731).

a. Dahringer et al. teach a nonwoven of electret fiber mixtures that comprise at least two different types of fibers and charge control agents (Abstract). The nonwoven may be formed via needle-punching (col. 5, lines 60-65). The nonwoven article may also be needle-punched to other layers (col. 8, lines 37-42) providing it with greater stability or additional filtering capability. The fibers of the nonwoven may be polypropylene (col. 12, lines 16-21), which are "melt-bondable". The nonwoven mainly comprises fibers with 0.01 to 30% by weight of the invention being charge control agents (Abstract). This teaching provides for the applied article to comprise 70 to 99.99 weight percent polypropylene fibers. A number of charge control agents (charge treatment agents) may

be applied to the fibers of the nonwoven fabrics including cationic amides (col. 12, lines 50-59). The fibers may be made in a sheath-core orientation with the sheath comprising the electret material (col. 5, lines 43-48). This provides for Applicant's charge treatment saturation, as the surface of every fiber in the article possesses the charge treatment. The linear density of the fibers of the applied nonwoven range from 0.018 to 27 denier (col. 4, lines 30-38). Examiner interprets this teaching to anticipate a blend of micro-denier/fine-denier fibers and coarse-denier fibers.

b. The nonwoven fabrics may be mechanically consolidated (col. 6, lines 60-65) via heated calendaring (col. 8, lines 25-29) and so the fabric density, air permeability, and mean pore size can be controlled through heated calendaring and densification of the nonwoven sheets. The linear density of the fibers of the applied nonwoven range from 0.018 to 27 denier (col. 4, lines 30-38). When converted to diameter based upon a density of 1.7g/cc (polyester) the fibers have a diameter ranging from 0.9 to 47.4 micrometers. Examiner interprets this teaching to anticipate a blend of micro-denier/fine-denier fibers and coarse-denier fibers. Dahringer et al. is silent as to the creation of a multi-layered, graded density filter structure, the use of polyamide-epichlorohydrin (PAE) and overall filter density.

c. Kahlbaugh et al. teach filtration articles that comprises a gradient depth filter system with multiple layers (col. 5, lines 42-46) that decrease in fiber size with depth (col. 5, lines 7-10).

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d. Since Dahringer et al. and Kahlbaugh et al. are from the same field of endeavor, (i.e. filters), the purpose disclosed by Kahlbaugh et al. would have been recognized in the pertinent art of Dahringer et al.

e. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Dahringer et al. into a multi-layer density graded filter. The skilled artisan would have been motivated by the desire to create a filter with an extended lifetime or relative long lifetime (col. 6, lines 44-49).

f. Bond et al. teach needle-punched [0136] nonwoven webs comprising polypropylene fibers [0137] that may be used as filters [0138]. The fibers may comprise multiple components and may include wet strength resins such as polyamide-epichlorohydrin (PAE) [0062].

g. Since Dahringer et al. and Bond et al. are from the same field of endeavor, (i.e. filters), the purpose disclosed by Bond et al. would have been recognized in the pertinent art of Dahringer et al.

h. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Dahringer et al. with the wet strength resin of Bond et al. with the motivation to improve the crosslinking ability of the polypropylene fibers of the filter [0062]. The invention of Bond et al. provides for a different motivation than Applicant for the inclusion of PAE into the nonwoven filter fabric, but the teaching still reads on the instantly claimed article as it would also serve as charge treatment to the polypropylene fibers.

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- i. Pike et al. disclose a high-density nonwoven filter comprising a density between 0.07 and about 0.5 g/cm<sup>3</sup> (abstract). The filter of Pike et al. possesses increased effective filtration and thus has an increased throughput rate (col. 8, lines 15-32).
- j. Since Dahringer et al. and Pike et al. are from the same field of endeavor, (i.e. filters), the purpose disclosed by Pike et al. would have been recognized in the pertinent art of Dahringer et al.
- k. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to have made the article of Dahringer et al. with the density of Pike et al. with the motivation to increasing the filter's efficiency. As illustrated in Figure 5 the filter's maximum efficiency occurs within the claimed density range.

#### ***Response to Arguments***

- 3. Applicant's arguments with respect to claims 33, 35, 41, 42, 47, 48, 53, 54, 59, 60 and 65 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

- 4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew D. Matzek whose telephone number is 571.272.2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/  
Examiner, Art Unit 1771

/Terrel Morris/  
Terrel Morris  
Supervisory Patent Examiner  
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